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Please find below and/or attached an Office communication concerning this application or proceeding.

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/728,358
Filing Date: December 03, 2003
Appellant(s): LIAO, TIANYI

Christina Geerlof
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/3/2008 appealing from the Office action mailed 8/28/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

3,940,917	STRACHAN	3-1976
5,896,634	BRODOWSKI	4-1999
3,719,664	HAYES	3-1973
3,867,242	MILLER	2-1975
JP 4733754	NAKATOMI	8-1972

(9) Grounds of Rejection

The following grounds of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 5,896,634 to Brodowski et al. (hereinafter referred to as Brodowski).

Regarding claims 9-20, Strachan discloses a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft in a range from 1.2X to 6.2X of an original spun length of the strand; at least one hard yarn selected from the group consisting of: synthetic fibers, natural fibers and a blend of synthetic and natural fibers, wherein said hard yarn is aligned adjacent and substantially parallel to said strand to make an aligned yarn (see entire document including column 2, lines 3-68 and column 5, lines 32-39).

Strachan discloses that a size material should not be applied prior to the entangling process, but Strachan discloses that certain finishes may be applied which do not prevent the hard yarns from opening during the entanglement process (column 6, lines 52-59). Strachan also discloses that when a lower tension is applied to the composite yarn the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Brodowski discloses that it is known in the art to

apply a size material to a composite yarn to result in easy weavability (see column 1, lines 45-68), it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size material to the composite yarn of Strachan, after the entangling process, because the size material allows for easy weavability of the composite yarn.

Regarding claim 10, Strachan discloses that the elastomeric strand may be a spandex yarn of a denier of from 20 to 140 before stretching and that the hard yarn may have a total denier of from 45 to 900 (see Examples).

Regarding claim 11, Brodowski discloses that a wax may be added to the sizing agent to further improve weavability (column 1, lines 45-67).

Regarding claim 12, Brodowski does not specifically disclose that the sizing agent is applied as a coating, but the examiner takes Official Notice that sizing agents are conventionally applied as coatings.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1 to 1:4, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the

aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Brodowski discloses that the size material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

3. Claims 9-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of Japanese Patent No. 4 733 754 to Nakatomi et al. (hereinafter referred to as Nakatomi).

Regarding claims 9-10 and 12-20, Strachan discloses a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft in a range from 1.2X to 6.2X of an original spun length of the strand; at least one hard yarn selected from the group consisting of: synthetic fibers, natural fibers and a blend of synthetic and natural fibers, wherein said hard yarn is aligned adjacent and substantially parallel to said strand to make an aligned yarn (see entire document including column 2, lines 3-68 and column 5, lines 32-39).

Strachan discloses that a size material should not be applied prior to the entangling process, but Strachan discloses that certain finishes may be applied which do not prevent the hard yarns from opening during the entanglement process (column 6, lines 52-59). Strachan also discloses that when a lower tension is applied to the composite yarn the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Nakatomi discloses that it is known in the art to

apply a size material to a composite yarn to result in easy weavability (see entire document), it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size material to the composite yarn of Strachan, after the entangling process, because the size material allows for easy weavability of the composite yarn.

Regarding claim 10, Strachan discloses that the elastomeric strand may be a spandex yarn of a denier of from 20 to 140 before stretching and that the hard yarn may have a total denier of from 45 to 900 (see Examples).

Regarding claim 12, Nakatomi does not specifically disclose that the sizing agent is applied as a coating, but the examiner takes Official Notice that sizing agents are conventionally applied as coatings.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1 to 1:4, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Nakatomi discloses that the PVA material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

4. Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 3,719,664 to Hayes et al. (hereinafter referred to as Hayes).

Regarding claims 9-16, Strachan discloses a composite yarn comprising at least one elastomeric fiber forming a strand with a total draft in a range from 1.2X to 6.2X of an original spun length of the strand; at least one hard yarn selected from the group consisting of: synthetic fibers, natural fibers and a blend of synthetic and natural fibers, wherein said hard yarn is aligned adjacent and substantially parallel to said strand to make an aligned yarn (see entire document including column 2, lines 3-68 and column 5, lines 32-39).

Strachan discloses that a size material should not be applied prior to the entangling process, but Strachan discloses that certain finishes may be applied which do not prevent the hard yarns from opening during the entanglement process (column 6, lines 52-59). Strachan also discloses that when a lower tension is applied to the composite yarn the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Hayes discloses that it is known in the art to apply a size material to a yarn to result in easy weavability (column 1, lines 5-43), it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size

material to the composite yarn of Strachan, after the entangling process, because the size material allows for easy weavability of the composite yarn.

Regarding claim 10, Strachan discloses that the elastomeric strand may be a spandex yarn of a denier of from 20 to 140 before stretching and that the hard yarn may have a total denier of from 45 to 900 (see Examples).

Regarding claim 12, Hayes discloses that the sizing agent is applied as a coating (column 1, lines 26-43).

Regarding claims 13-16, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1 to 1:4, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

5. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 5,896,634 to Brodowski as applied to claims 9-20 above, and further in view of USPN 3,867,242 to Miller.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Strachan does not specifically mention the use of composite yarns and hard yarns in the warp and/or weft direction, but Miller discloses that it is known in the art to alternate elastomeric and non-elastomeric fibers (1:1 ratio) in the warp and/or weft direction to produce the desired fabric characteristics (see entire document including the paragraph bridging columns 4 and 5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Brodowski discloses that the size material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

6. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of Japanese Patent No. 4 733 754 to Nakatomi as applied to claims 9-10 and 12-20 above, and further in view of USPN 3,867,242 to Miller.

Regarding claims 13-20, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Strachan does not specifically mention the use of composite yarns and hard yarns in the warp and/or weft direction, but Miller discloses that it is known in the art to alternate elastomeric and non-elastomeric fibers (1:1 ratio) in the warp and/or weft direction to produce the desired fabric characteristics (see entire document including the paragraph bridging columns 4 and 5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 17-20, Nakatomi discloses that the PVA material is washed away after final finishing (bare strands) (column 1, lines 45-67). Strachan discloses that the yarns may not be twisted (paragraph bridging columns 3 and 4).

Regarding claims 18 and 20, Strachan discloses that the fabric may be used as a garment (column 11, lines 11-22).

7. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 3,940,917 to Strachan in view of USPN 3,719,664 to Hayes as applied to claims 9-16 above, and further in view of USPN 3,867,242 to Miller.

Regarding claims 13-16, Strachan discloses that the composite yarns may be used to form woven fabrics or knitted fabrics (column 1, lines 12-25) and that the composite yarns may be knit on one bar and hard yarns may be knit on the other (column 10, lines 20-62). Strachan specifically discloses that the particular fabric character and aesthetics will depend on the geometry (column 10, lines 41-48). Strachan does not specifically mention the use of composite yarns and hard yarns in the warp and/or weft direction, but Miller discloses that it is known in the art to alternate elastomeric and non-elastomeric fibers (1:1 ratio) in the warp and/or weft direction to produce the desired fabric characteristics (see entire document including the paragraph bridging columns 4 and 5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use composite yarns and/or hard yarns in the warp and/or weft yarns of a woven or elastic fabric, in a ratio of from 1:1, because it is understood by one of ordinary skill in the art that the structure of the woven fabric directly affects the cost of the fabric, the fabric character, and the aesthetics, and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

(10) Response to Argument

Claims 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strachan in view of Brodowski.

The appellant asserts that Strachan fails teach or suggest that the hard yarn is “aligned adjacent and substantially parallel” to the elastomeric strand “to make an aligned yarn.” The examiner respectfully disagrees.

The meaning of “adjacent” is “close to” or “lying near.” It is clear that the hard yarn and the elastomeric strand are close to each other and lie near each other (see Figure 3). Therefore, the yarn and strand are clearly adjacent.

The meaning of “align” is “to bring into line or alignment.” It is clear that the composite yarn of Strachan (the yarn as a whole) forms a straight line. Therefore, the composite yarn is an aligned yarn.

The appellant appears to be primarily arguing that Strachan fails to teach or suggest that the hard yarn and elastomeric strand are “substantially parallel.” The examiner respectfully disagrees for a plurality of reasons.

Firstly, the appellant argues that a yarn and strand have to be as parallel as illustrated in Figure 3A of the current application (perfectly parallel) to be considered “substantially parallel.” The examiner respectfully disagrees. The term “substantially” is a broad term. See MPEP 2173.05(b) and *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). Therefore, the claim limitation “substantially parallel” has a broader interpretation than “parallel.” Considering that the hard yarn and elastomeric strand of Strachan are aligned in the same overall direction, the hard yarn and elastomeric strand are substantially parallel.

Secondly, the current claims do not require that every portion of the hard yarn must be substantially parallel with every portion of the elastomeric strand. Rather, the current claims are written with open claim language. The appellant simply claims that the hard yarn is aligned (in any manner) adjacent and substantially parallel to make an aligned yarn. Therefore, a composite yarn that comprises portions wherein a hard yarn and an elastomeric strand are substantially parallel possesses said claim limitations. It is noted that the appellant admits (see page 5 of the appeal brief) that “there are portions of the (Strachan) yarn where an elastomeric strand and a hard yarn are “substantially parallel” to each other.”

The appellant asserts that Strachan completely teaches away from the use of a size material in column 6, lines 52-59. The examiner respectfully disagrees. Strachan simply discloses that an especially cohesive size material should not be applied, prior to the entangling process, to allow the bundle to open during the entangling process (column 6, lines 52-59). Therefore, Strachan discloses that certain finishes may be applied prior to the entangling process that do not prevent the hard yarns from opening during the entanglement process and that any size material may be applied after the entangling process.

Strachan discloses that when a lower tension is applied to the composite yarn, the feeding of the yarn into the knitting or weaving may be impaired and the fabric quality may be degraded (paragraph bridging columns 7 and 8). Considering that Brodowski, Nakatomi, and Hayes each disclose that it is known in the art to apply a size material to a composite yarn to result in easy weavability, it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a size material to the composite yarn of Strachan, after the entangling process, motivated by a desire to allow for easy weavability of the composite yarn.

Alternatively, it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a less cohesive size material to the composite yarn of Strachan prior to the entangling process, motivated by a desire to allow for easy weavability of the composite yarn.

The appellant also asserts that Strachan teaches away from the use of a size material because Strachan discloses that certain coherency is accomplished without the need for fusing the covering filaments to the core (column 9, lines 40 and 41). The examiner respectfully disagrees. The cited section of Strachan clearly does not exclude fusing from the invention. The cited section is simply referring to what would happen to the composite yarn if one was to cut the hard yarns. Strachan is merely referring to a test that could be conducted on the composite yarn of Strachan to distinguish itself from another type of composite yarn. Strachan simply discloses that upon cutting, the hard yarns of the invention would remain entangled about the core even without the hard yarns being fused to the elastomeric strand core.

Claims 9-10 and 12-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strachan in view of Nakatomi.

The appellant asserts that Nakatomi is not properly combinable with Strachan because Strachan allegedly teaches away from the addition of a size material. The examiner respectfully disagrees. Strachan discloses that coherency is accomplished without the need for fusing the covering filaments to the core (column 9, lines 40 and 41). Therefore, Strachan does not exclude fusing from the claimed invention. Rather, Strachan simply discloses that fusing is not necessary.

Claims 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strachan in view of Hayes.

The appellant asserts that Hayes is not properly combinable with Strachan because Strachan allegedly teaches away from the addition of a size material. The examiner respectfully disagrees. Strachan discloses that coherency is accomplished without the need for fusing the covering filaments to the core (column 9, lines 40 and 41). Therefore, Strachan does not exclude fusing from the claimed invention. Rather, Strachan simply discloses that fusing is not necessary.

Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strachan in view of Brodowski in view of USPN 3,867,242 to Miller.

The appellant fails to separately argue the claims.

Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strachan in view of Nakatomi in view of USPN 3,867,242 to Miller.

The appellant fails to separately argue the claims.

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strachan in view of Hayes in view of USPN 3,867,242 to Miller.

The appellant fails to separately argue the claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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